

Recent Papers by IBM Authors

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• Journals are listed alphabetically by title; papers are listed sequentially for each journal.

A

Internal Sorting Using a Minimal Tree Merge Strategy, L. R. Power (RES Yorktown Hts., NY), *ACM Transactions on Mathematical Software* 6, No. 1, 68-79 (1980).

The Dynamics of Water Protein Interactions—Results from Measurements of Nuclear Magnetic Relaxation Dispersion, S. H. Koenig (RES Yorktown Hts., NY), *ACS Symposium Series* No. 127, 157-176 (1980).

Size-depth Tradeoff in Non-monotone Boolean Formulae, B. Commentz-Walter (IBM Germany, Boeblingen) and J. Sattler (Johann-Wolfgang-Goethe-Universität, Frankfurt, Federal Republic of Germany), *Acta Informatica* 14, No. 3, 257-269 (1980).

Plasmon surface polariton dispersion by direct optical observation, J. D. Swalen, J. G. Gordon II, M. R. Philpott, A. Brillante, I. Pockrand, and R. Santo (RES San Jose, CA), *American Journal of Physics* 48, No. 8, 669-672 (1980).

Transition-Metal Complexes of Malonaldehyde and Dithiomalonaldehyde, U. T. Mueller-Westerhoff and A. Alscher (RES San Jose, CA), *Angewandte Chemie* 19, No. 8, 638-639 (1980).

An AES-SIMS Study of Silicon Oxidation Induced by Ion or Electron Bombardment, W. Reuter and K. Wittmaack (RES Yorktown Hts., NY), *Applications of Surface Science* 5, No. 3, 221-242 (1980).

Graded-index AR surfaces produced by ion implantation on plastic materials, E. Spiller, I. Haller, R. Feder, J. E. E. Baglin, and W. N. Hammer (RES Yorktown Hts., NY), *Applied Optics* 19, No. 17, 3022-3026 (1980).

Diffraction-grating-enhanced light emission from tunnel junctions, J. R. Kirtley, T. N. Theis, and J. C. Tsang (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 5, 435-437 (1980).

Schottky barrier formation by laser irradiation processing, E. S. Yang, C. M. Wu (Columbia University, New York), H. J. Vollmer, T. O. Sedgewick, and R. T. Hodgson (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 5, 462-463 (1980).

Pulsed laser irradiation of lead-implanted single-crystal copper films, E. Rimini and J. E. E. Baglin (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 5, 481-483 (1980).

Reciprocity between the reflection electron microscope and the low-loss scanning electron microscope, O. C. Wells (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 6, 507-510 (1980).

Studies by cross-sectional transmission electron microscope of InAs grown by molecular beam epitaxy on GaAs substrates, C.-A. Chang, C. M. Serrano, L. L. Chang, and L. Esaki (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 6, 538-540 (1980).

Shallow silicide contacts formed by using codeposited Pt₃Si and Pt_{1.2}Si films, M. Eizenberg, H. Föll, and K. N. Tu (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 6, 547-549 (1980).

Two-dimensional focusing holographic grating coupler, D. Heitmann and R. V. Pole (RES San Jose, CA), *Applied Physics Letters* 37, No. 7, 585-587 (1980).

Niobium nanobridge dc SQUID, R. F. Voss, R. B. Laibowitz, and A. N. Broers (RES Yorktown Hts., NY), *Applied Physics Letters* 37, No. 7, 656-658 (1980).

Raman Measurements on Thin Polymer Films and Organic Monolayers, J. F. Rabolt, R. Santo, and J. D. Swalen (RES San Jose, CA), *Applied Spectroscopy* 34, No. 5, 517-521 (1980).

Photodissociation Cross Sections and Rates for CH⁺ in Interstellar Clouds, K. Kirby, W. G. Roberge (Harvard-Smithsonian Center for Astrophysics, Cambridge, MA), R. P. Saxon (SRI International, Menlo Park, CA), and B. Liu (RES San Jose, CA), *Astrophysical Journal* 239, No. 3, 855-858 (1980).

B

Purpose in a Cognitive Theory of Reference, J. M. Carroll (RES Yorktown Hts., NY), *Bulletin of the Psychonomic Society* 16, No. 1, 37-40 (1980).

C

Optical Hole Burning and Matrix Effects in a Phthalocyanine Complex of Ruthenium(II), A. R. Gutiérrez (RES San Jose, CA), *Chemical Physics Letters* 74, No. 2, 293-297 (1980).

Phonon Selective Low Temperature Photochemistry in Alcohol Glasses, J. Friedrich and D. Haarer (RES San Jose, CA), *Chemical Physics Letters* 74, No. 3, 503-506 (1980).

Reorientation of Impurity Molecules in Host Crystals upon Excitation of a Local Phonon: The System Naphthalene in Durene, T. R. Koehler (RES San Jose, CA) and J. Schmidt (Huygens Laboratorium, Leyden, The Netherlands), *Chemical Physics Letters* 75, No. 1, 38-42 (1980).

A Model of Shared DASD and Multipathing, Y. Bard (DPD Scientific Center, Cambridge, MA), *Communications of the ACM* 23, No. 10, 564-572 (1980).

Computational Algorithms for Product Form Queuing Networks, K. M. Chandy (University of Texas, Austin) and C. H. Sauer (RES Yorktown Hts., NY), *Communications of the ACM* **23**, No. 10, 573-583 (1980).

The Publication of Software Export Positions—Reply, C. L. Gold (CHQ White Plains, NY), S. E. Goodman (University of Virginia, Charlottesville), and B. G. Walker (System Development Corp., Santa Monica, CA), *Communications of the ACM* **23**, No. 10, 601-602 (1980).

MEDIC: A Language to Process Clinical Data for Elementary Statistical Purposes, G. Fava (Istituto Nazionale Tumori, Milano, Italy), M. Ferrario (IBM Italy, Milano), and G. Zonca (Istituto Nazionale Tumori, Milano, Italy), *Computer Programs in Biomedicine* **11**, No. 3, 229-237 (1980).

D

New capabilities for VM/370 CMS users enhance production, S. W. Friedman, M. L. Schrag, J. W. Scales (SPD Endicott, NY), and J. W. McMillian (SCD Charlotte, NC), *Data Management* **18**, No. 8, 25-28 (1980).

Domino Tilings of Rectangles with Fixed Width, D. Klarner (State University of New York, Binghamton) and J. Pollack (FSD Owego, NY), *Discrete Mathematics* **32**, No. 1, 45-52 (1980).

I

Electronic information interchange in an office environment, M. R. DeSousa (ISD Boulder, CO), *IBM Systems Journal* **20**, No. 1, 4-22 (1981).

A primer on relational data base concepts, G. Sandberg (IBM Stockholm, Sweden), *IBM Systems Journal* **20**, No. 1, 23-40 (1981).

System R: An architectural overview, M. W. Blasgen, M. M. Astrahan, D. D. Chamberlin, J. N. Gray, W. F. King, B. G. Lindsay, R. A. Lorie, J. W. Mehl, T. G. Price, G. R. Putzolu, M. Schkolnick, P. G. Selinger, D. R. Slutz, H. R. Strong, I. L. Traiger, B. W. Wade, and R. A. Yost (RES San Jose, CA), *IBM Systems Journal* **20**, No. 1, 41-62 (1981).

Processor, I/O path, and DASD configuration capacity, J. B. Major (DPD Montreal, Canada), *IBM Systems Journal* **20**, No. 1, 63-85 (1981).

User-definable software applied to a real-time ambient air quality monitoring system, P. Halpern and J. W. Rettberg (DPD Scientific Center, Palo Alto, CA), *IBM Systems Journal* **20**, No. 1, 86-103 (1981).

Design and Characteristics of the Lightly Doped Drain-Source (LDD) Insulated Gate Field-Effect Transistor, S. Ogura, P. J. Tsang, W. W. Walker, D. L. Critchlow, and J. F. Shepard (DSD East Fishkill, NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 424-432 (1980).

Subnanosecond Self-Aligned I^2L /MTL Circuits, D. D. Tang, T. H. Ning, R. D. Isaac, G. C. Feth (RES Yorktown Hts., NY), S. K. Wiedmann (IBM Germany, Boeblingen), and H.-N. Yu (RES Yorktown Hts., NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 444-449 (1980).

Vertical p-n-p for Complementary Bipolar Technology, I. E. Magdo (DSD East Fishkill, NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 459-461 (1980).

Composite Silicide Gate Electrodes—Interconnections for VLSI Device Technologies, H. J. Geipel, Jr., N. Hsieh, M. H. Ishaq, C. W. Koburger, and F. R. White (GTD Burlington, VT), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 482-489 (1980).

A Model for the Lateral Variation of Autodoping in Epitaxial Films, G. R. Srinivasan (DSD East Fishkill, NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 558-561 (1980).

Hot-Electron Design Considerations for High-Density RAM Chips, R. R. Troutman, T. V. Harroun, P. E. Cottrell, and S. N. Chakravarti (GTD Burlington, VT), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 694-704 (1980).

Proposed Process Modifications for Dynamic Bipolar Memory to Reduce Emitter-Base Leakage Current, I. Antipov (DSD East Fishkill, NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 4, 714-719 (1980).

A 50K Bit Schottky Cell Bipolar Read-Only Memory, J. A. Ludwig (SPD Kingston, NY), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 5, 816-820 (1980).

An 18K Bipolar Dynamic Random Access Memory, R. F. Penoyer, B. El-Kareh, R. J. Houghton, P. K. Lane, and T. A. Selfridge (GTD Burlington, VT), *IEEE Journal of Solid-State Circuits* **SC-15**, No. 5, 861-865 (1980).

Yield Maximization and Worst-Case Design with Arbitrary Statistical Distributions, R. K. Brayton (RES Yorktown Hts., NY), S. W. Director (Carnegie-Mellon University, Pittsburgh, PA), and G. D. Hachtel (RES Yorktown Hts., NY), *IEEE Transactions on Circuits and Systems* **CAS-27**, No. 9, 756-764 (1980).

Carrier Recovery for Data Communication Systems with Adaptive Equalization, R. W. Chang (FSD Owego, NY) and R. Srinivasagopalan (Rockwell International, Miami, FL), *IEEE Transactions on Communications* **COM-28**, Part I, No. 8, 1142-1153 (1980).

Ion-Implanted p-Resistor Reliability, P. K. Chaudhari, G. R. Nelson (DSD Poughkeepsie, NY), and A. Nagarajan (DSD East Fishkill, NY), *IEEE Transactions on Components, Hybrids, and Manufacturing Technology* **CHMT-3**, No. 2, 258-261 (1980).

Automatic Control of Large-Scale Integrated Circuit Fabrication Processes—Process Control Algorithms, E. G. Smith (FSD Manassas, VA), *IEEE Transactions on Components, Hybrids, and Manufacturing Technology* **CHMT-3**, No. 3, 331-339 (1980).

Heat Transfer of Modified Silicon Surfaces, M. D. Reeber and R. G. Frieser (DSD East Fishkill, NY), *IEEE Transactions on Components, Hybrids, and Manufacturing Technology* **CHMT-3**, No. 3, 387-391 (1980).

Maintaining Sorted Files in a Magnetic Bubble Memory, G. Bon-giovanni (RES Yorktown Hts., NY) and F. Luccio (Istituto di

Scienze dell'Informazione, Università di Pisa, Italy), *IEEE Transactions on Computers* C-29, No. 10, 855-863 (1980).

A Tree Storage Scheme for Magnetic Bubble Memories, K. M. Chung (Wang Laboratories, Inc., Lowell, MA), F. Luccio (Istituto di Scienze dell'Informazione, Università di Pisa, Italy), and C. K. Wong (RES Yorktown Hts., NY), *IEEE Transactions on Computers* C-29, No. 10, 864-874 (1980).

Magnetic Bubble Memory Architectures for Supporting Associative Searching of Relational Databases, K. L. Doty (University of Florida, Gainesville), J. D. Greenblatt (GSD Boca Raton, FL), and S. Y. W. Su (University of Florida, Gainesville), *IEEE Transactions on Computers* C-29, No. 11, 957-970 (1980).

Dual-Mode Logic for Function-Independent Fault Testing, S. Das-Gupta (DSD Poughkeepsie, NY), C. R. P. Hartmann, and L. D. Rudolph (Syracuse University, NY), *IEEE Transactions on Computers* C-29, No. 11, 1025-1029 (1980).

Construction of a Generalized Connector with $5.8 n \log_2 n$ Edges, K. M. Chung (Wang Laboratories, Inc., Lowell, MA) and C. K. Wong (RES Yorktown Hts., NY), *IEEE Transactions on Computers* C-29, No. 11, 1029-1032 (1980).

Dependence of Electroluminescence Efficiency and Memory Effect on Mn Concentration in ZnS:Mn ACTEL Devices, V. Marrello and A. Onton (RES San Jose, CA), *IEEE Transactions on Electron Devices* ED-27, No. 9, 1767-1770 (1980).

Effects of Impurity Compensation on Injection Current in Si Bipolar Transistors, D. D. Tang (RES Yorktown Hts., NY) and A. Michel (DSD East Fishkill, NY), *IEEE Transactions on Electron Devices* ED-27, No. 9, 1836-1838 (1980).

Comments on "Depletion Approximation Analysis of the Differential Capacitance-Voltage Characteristics of an MOS Structure with Nonuniformly Doped Semiconductors," R. R. O'Brien (DSD East Fishkill, NY), *IEEE Transactions on Electron Devices* ED-27, No. 9, 1848-1849 (1980).

Low-Field Time-Dependent Dielectric Integrity, E. S. Anolick and G. R. Nelson (DSD Poughkeepsie, NY), *IEEE Transactions on Reliability* R-29, No. 3, 217-221 (1980).

Program Correctness: On Inductive Assertion Methods, J. C. King (RES San Jose, CA), *IEEE Transactions on Software Engineering* SE-6, No. 5, 465-479 (1980).

Generating alternatives to a material distribution center, Part II: FLO/STO and GO/FLO analyses aid in decision, J. Koenig (GPD San Jose, CA), *Industrial Engineering* 12, No. 9, 28-32 (1980).

J

Phase Diagram of the System $\text{Na}_2\text{O} \cdot \text{Ga}_2\text{O}_3 - \text{Ga}_2\text{O}_3$ and its Relation to the System $\text{Na}_2\text{O} \cdot \text{Al}_2\text{O}_3 - \text{Al}_2\text{O}_3$, L. M. Foster, G. V. Chandrashekhar, J. E. Scardefield, and R. B. Bradford (RES Yorktown Hts., NY), *Journal of the American Ceramic Society* 63, No. 9-10, 509-512 (1980).

Organic Photochemistry with 6.7-eV Photons: Rigid Homoallylic Alcohols. An Inverse Norrish Type II Rearrangement, J. Studebaker, R. Srinivasan, J. A. Ors, and T. Baum (RES Yorktown

Hts., NY), *Journal of the American Chemical Society* 102, No. 22, 6872-6874 (1980).

Use of Holography to Investigate Photochemical Reactions, D. M. Burland, G. C. Bjorklund, and D. C. Alvarez (RES San Jose, CA), *Journal of the American Chemical Society* 102, No. 23, 7117-7119 (1980).

Quasiresonant laser-produced plasma: An efficient mechanism for localized breakdown, A. C. Tam (RES San Jose, CA), *Journal of Applied Physics* 51, No. 9, 4682-4687 (1980).

Flow effects in epitaxial autodoping, G. R. Srinivasan (DSD East Fishkill, NY), *Journal of Applied Physics* 51, No. 9, 4824-4829 (1980).

Charge trapping studies in SiO_2 using high current injection from Si-rich SiO_2 films, D. J. DiMaria, R. Ghez, and D. W. Dong (RES Yorktown Hts., NY), *Journal of Applied Physics* 51, No. 9, 4830-4841 (1980).

Ion-beam-induced metastable Pt_2Si_3 phase. I. Formation, structure, and properties, B. Y. Tsaur, J. W. Mayer (California Institute of Technology, Pasadena, CA), and K. N. Tu (RES Yorktown Hts., NY), *Journal of Applied Physics* 51, No. 10, 5326-5333 (1980).

Ion-beam-induced metastable Pt_2Si_3 phase. II. Kinetics and morphology, B. Y. Tsaur, J. W. Mayer (California Institute of Technology, Pasadena, CA), J. F. Graczyk, and K. N. Tu (RES Yorktown Hts., NY), *Journal of Applied Physics* 51, No. 10, 5334-5341 (1980).

Structure of the in-plane 90° charged magnetic domain wall in double-layer magnetic films, G. R. Henry (RES San Jose, CA), *Journal of Applied Physics* 51, No. 10, 5499-5501 (1980).

A kinetic study of platinum-mercury contact reaction, S. K. Lahiri and D. Gupta (RES Yorktown Hts., NY), *Journal of Applied Physics* 51, No. 10, 5555-5560 (1980).

Wettability Studies of Plasma-Polymerized Hexamethyldisilazane, N. K. Eib, K. L. Mittal, and A. Friedrichs (DSD East Fishkill, NY), *Journal of Applied Polymers* 25, No. 10, 2435-2438 (1980).

Ab initio study of the isopropyl radical, J. Pacansky and M. Dupuis (RES San Jose, CA), *Journal of Chemical Physics* 73, No. 4, 1867-1872 (1980).

Excited states of CH^+ : Potential curves and transition moments, R. P. Saxon (SRI International, Menlo Park, CA), K. Kirby (Harvard-Smithsonian Center for Astrophysics, Cambridge, MA), and B. Liu (RES San Jose, CA), *Journal of Chemical Physics* 73, No. 4, 1873-1879 (1980).

Mossbauer spectroscopy of the mixed-spin and high-spin states of Chromatium ferriocytochrome c', M. M. Maltempo (University of Colorado, Denver), T. H. Moss (RES Yorktown Hts., NY), and K. Spartalian (University of Vermont, Burlington), *Journal of Chemical Physics* 73, No. 5, 2100-2106 (1980).

The effects of basis set quality and configuration mixing in *ab initio* calculations of the ionization potentials of the nitrogen molecule, W. C. Ermler (Stevens Institute of Technology, Hoboken, NJ) and A. D. McLean (RES San Jose, CA), *Journal of Chemical Physics* 73, No. 5, 2297-2303 (1980).

Interaction energies for low-lying electronic states of NaH and NaH⁺: Scattering of H⁻ by alkali atoms, R. E. Olson (SRI International, Menlo Park, CA) and B. Liu (RES Yorktown Hts., NY), *Journal of Chemical Physics* 73, No. 6, 2817-2824 (1980).

A self-consistent cell model for the melting transition in hard sphere systems, E. R. Cowley and J. A. Barker (RES San Jose, CA), *Journal of Chemical Physics* 73, No. 7, 3452-3455 (1980).

Tertiary Aminylium Radicals as Protic Acids, G. P. Gardini (Istituto di Chimica Organica dell'Università, Parma, Italy) and J. Bargon (RES San Jose, CA), *Journal of the Chemical Society, Chemical Communications* No. 16, 757-758 (1980).

Differential Radical Cation Stability from the *cis*- and *trans*- Cyclophosphazene(III)azane Derivatives, A. F. Diaz (RES San Jose, CA), O. J. Scherer, and K. Andres (Universität Kaiserslautern, Federal Republic of Germany), *Journal of the Chemical Society, Chemical Communication* No. 20, 982-983 (1980).

On Derjaguin's Formula for the Force between Planar Double Layers, D. A. McQuarrie (University of California, Davis), W. Olivares (Universidad de los Andes, Merida, Venezuela), D. Henderson (RES San Jose, CA), and L. Blum (University of Rio Piedras, Puerto Rico), *Journal of Colloid and Interface Science* 77, No. 1, 272-273 (1980).

A Functional Relation and an Acceleration Procedure for Calculating the Voltage of Josephson Junctions, W. L. Miranker and K. Bandes (RES Yorktown Hts., NY), *Journal of Computational Physics* 37, No. 2, 274-279 (1980).

Factors Influencing Surface Quality and Impurity Distribution in Silicon Ribbons Grown by the Capillary Action Shaping Technique (CAST), T. F. Cizek, G. H. Schwuttke, and K. H. Yang (DSD East Fishkill, NY), *Journal of Crystal Growth* 50, No. 1, 160-174 (1980).

Structural and Electrical Characterization of Crystallographic Defects in Silicon Ribbons, K. Yang, G. H. Schwuttke, and T. F. Cizek (DSD East Fishkill, NY), *Journal of Crystal Growth* 50, No. 1, 301-310 (1980).

Electroactive Polyaniline Films, A. F. Diaz and J. A. Logan (RES San Jose, CA), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* 111, No. 1, 111-114 (1980).

Reversible Electrochemical Oxidation of (CH₃)_x Films, A. F. Diaz and T. C. Clarke (RES San Jose, CA), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* 111, No. 1, 115-117 (1980).

A Simple Non-Iterative Method for Calculating the Potential of an Electric Double Layer, D. Henderson (RES San Jose, CA) and L. Blum (University of Puerto Rico, Rio Piedras), *Journal of Elec-*

troanalytical Chemistry and Interfacial Electrochemistry 111, No. 2+3, 217-222 (1980).

Surface Enhanced Raman Spectra from Silver Electrodes in Azide Solution, R. E. Kunz, J. G. Gordon II, M. R. Philpott, and A. Girlando (RES San Jose, CA), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* 112, No. 2, 391-395 (1980).

Comparative Behavior of Electrodes Coated with Thin Films of Structurally Related Electroactive Polymers, A. H. Schroeder, F. B. Kaufman, V. Patel, and E. M. Engler (RES Yorktown Hts., NY), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* 113, No. 2, 193-208 (1980).

The Influence of Polymer Morphology on Polymer Film Electrochemistry, A. H. Schroeder and F. B. Kaufman (RES Yorktown Hts., NY), *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry* 113, No. 2, 209-224 (1980).

Reversal of Relative Oxidation Rates of (111) and (100) Oriented Silicon Substrates at Low Oxygen Partial Pressures, S. I. Raider (RES Yorktown Hts., NY) and L. E. Forget (DSD East Fishkill, NY), *Journal of the Electrochemical Society* 127, No. 8, 1783-1787 (1980).

Anodic Etching of Defects in P-type Silicon, H. Föll (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* 127, No. 9, 1925-1931 (1980).

Properties of Thin Polyimide Films, L. B. Rothman (DSD East Fishkill, NY), *Journal of the Electrochemical Society* 127, No. 10, 2216-2220 (1980).

The Dependence of the Memory Effect in ZnS: Mn A-C Thin Film Electroluminescence on Mn Distribution, V. Marrello and A. Onton (RES San Jose, CA), *Journal of the Electrochemical Society* 127, No. 10, 2220-2222 (1980).

A Flow Model for Autodoping in VLSI Substrates, G. R. Srinivasan (DSD East Fishkill, NY), *Journal of the Electrochemical Society* 127, No. 10, 2305-2306 (1980).

Effects of Conductor Stress on Bubble Propagation in Contiguous Disk Devices, I. L. Sanders, S. M. Kane (RES San Jose, CA), and K. Y. Ahn (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* 127, No. 11, 2443-2445 (1980).

Investigation of Energy Traps and Phosphorescence in Zinc Silicate Phosphors by Photostimulated Emission, I. F. Chang and G. A. Sai-Halasz (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* 127, No. 11, 2458-2464 (1980).

On the Nature of CVD Si-Rich SiO₂ and Si₃N₄ Films, E. A. Irene, N. J. Chou, D. W. Dong, and E. Tierney (RES Yorktown Hts., NY), *Journal of the Electrochemical Society* 127, No. 11, 2518-2521 (1980).

A Study of Madelung Potential Effects in the ESCA Spectra of the Metal Oxides, J. Q. Broughton and P. S. Bagus (RES San Jose, CA), *Journal of Electron Spectroscopy and Related Phenomena* 20, No. 4, 261-280 (1980).

Interaction of Mechanical Stress with Residual Defects in Implanted Si, S. Mader (DSD East Fishkill, NY), *Journal of Electronic Materials* 9, No. 6, 963-976 (1980).

Role of the Doublet State in the Photochemistry of Reinecke's Salt. Chemical Reaction from the Doublet State of the Reinecke Ion and Other Cr(III) Amines, A. W. Adamson (University of Southern California, Los Angeles) and A. R. Gutiérrez (RES San Jose, CA), *Journal of Physical Chemistry* 84, No. 19, 2492-2494 (1980).

Electronic properties of various stages of lithium intercalated graphite, L. Samuelson and I. P. Batra (RES San Jose, CA), *Journal of Physics C* 13, No. 27, 5105-5124 (1980).

Radiative Transfer Through an Arbitrarily Thick, Scattering Atmosphere, A. H. Karp, J. Greenstadt, and J. A. Fillmore (DPD Scientific Center, Palo Alto CA), *Journal of Quantitative Spectroscopy and Radiative Transfer* 24, No. 5, 391-406 (1980).

Reactive Schottky barrier formation: The Pd/Si Interface, J. L. Freeouf, G. W. Rubloff, P. S. Ho, and T. S. Kuan (RES Yorktown Hts., NY), *Journal of Vacuum Science and Technology* 17, No. 5, 916-919 (1980).

Summary Abstract: Electronic surface properties and Schottky barriers for diamond(111), F. J. Himpsel, D. E. Eastman, and J. F. van der Veen (RES Yorktown Hts., NY), *Journal of Vacuum Science and Technology* 17, No. 5, 1085-1086 (1980).

Characterization of strain at Ga_{1-x}Al_xAs-GaAs interfaces using electrolyte electroreflectance, F. H. Pollak (Brooklyn College of City University of New York) and J. M. Woodall (RES Yorktown Hts., NY), *Journal of Vacuum Science and Technology* 17, No. 5, 1108-1112 (1980).

An overview of pattern data preparation for vector scan electron beam lithography, W. D. Grobman (RES Yorktown Hts., NY), *Journal of Vacuum Science and Technology* 17, No. 5, 1156-1163 (1980).

Surface studies on MBE-grown III-V compounds and alloys, R. Ludeke (RES Yorktown Hts., NY), *Journal of Vacuum Science and Technology* 17, No. 5, 1241-1246 (1980).

L

Functional Completeness as a Determinant of Processing Load During Sentence Comprehension, J. M. Carroll (RES Yorktown Hts., NY), *Language and Speech* 22, 347-369 (1979).

M

Rotational Relaxation of Chlorobenzene in Poly(methyl methacrylate). 1. Temperature and Concentration Effects, A. C. Ouano (RES San Jose, CA) and R. Pecora (Stanford University, CA), *Macromolecules* 13, No. 5, 1167-1173 (1980).

Rotational Relaxation of Chlorobenzene in Poly(methyl methacrylate). 2. Theoretical Interpretation, A. C. Ouano (RES San

Jose, CA) and R. Pecora (Stanford University, CA), *Macromolecules* 13, No. 5, 1173-1177 (1980).

Some References for the Ellipsoid Algorithm, P. Wolfe (RES Yorktown Hts., NY), *Management Science* 26, No. 8, 747-749 (1980).

Liquid Phase Epitaxial Films of Mn-Zn Spinel Ferrites Grown Under Reduced Oxygen Partial Pressures, T. S. Plaskett and D. A. Herman, Jr. (RES Yorktown Hts., NY), *Materials Research Bulletin* 15, No. 8, 1119-1127 (1980).

Estimation of the Reliability of Computer Components from Field Renewal Data, D. C. Trindade (GTD Burlington, VT) and L. D. Haugh (University of Vermont, Burlington), *Microelectronics and Reliability* 20, No. 3, 205-218 (1980).

Perturbation theory for charged hard spheres, D. Henderson (RES San Jose, CA) and L. Blum (University of Puerto Rico, Rio Piedras), *Molecular Physics* 40, No. 6, 1509-1511 (1980).

O

Color Center Laser Pumped by a Flashlamp-Pumped Dye Laser, R. Beigang (RES Yorktown Hts., NY), *Optics Communication* 34, No. 2, 249-251 (1980).

Nuclear-quadrupole optical hole burning in the stoichiometric material EuP₅O₁₄, R. M. Macfarlane, R. M. Shelby (RES San Jose, CA), A. Z. Genack, and D. A. Weitz (Exxon Research and Engineering Company, Linden, NJ), *Optics Letters* 5, No. 11, 462-464 (1980).

P

Hillock formation in lead films by grain boundary sliding, M. Ronay and C. F. Aliotta (RES Yorktown Hts., NY), *Philosophical Magazine A* 42, No. 2, 161-184 (1980).

Grain-boundary diffusion of ^{119m}Sn in Pb foils by the nuclear absorption technique, D. Gupta and D. R. Campbell (RES Yorktown Hts., NY), *Philosophical Magazine A* 42, No. 4, 513-526 (1980).

Some questions on charge ordering in Th₃P₄-type mixed-valence rare-earth compounds, F. Holtzberg (RES Yorktown Hts., NY), *Philosophical Magazine B* 42, No. 3, 491-495 (1980).

Effect of Atmospheric Conditions on Remote Sensing of a Surface Nonhomogeneity, J. V. Dave (DPD Scientific Center, Palo Alto, CA), *Photogrammetric Engineering and Remote Sensing* 46, No. 9, 1173-1180 (1980).

Atomic Arrangements in Vapor Quenched Pd₈₀Si₂₀ and Au₃₅Ni₆₅ Amorphous Alloys, J. F. Graczyk (RES Yorktown Hts., NY), *Physica Status Solidi A* 60, No. 1, 323-330 (1980).

Interactions of H and H⁻ with He and Ne, R. E. Olson (SRI International, Menlo Park, CA) and B. Liu (RES San Jose, CA), *Physical Review A* 22, No. 4, 1389-1394 (1980).

Theory of chemical trends in simple-metal elastic moduli, D. D. Ling (Harvard University, Cambridge, MA) and C.D. Gelatt, Jr.

(RES Yorktown Hts., NY), *Physical Review B* **22**, No. 2, 557-573 (1980).

Atomic structure of an impurity-stabilized Si {111} surface: Refinement using a combined-layer method. D. W. Jepsen (RES Yorktown Hts., NY), H. D. Shih, F. Jona (State University of New York, Stony Brook), and P. M. Marcus (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 2, 814-824 (1980).

Theory of intensities in inelastic-electron tunneling spectroscopy orientation of adsorbed molecules, J. Kirtley (RES Yorktown Hts., NY) and J. T. Hall (National Bureau of Standards, Washington, DC), *Physical Review B* **22**, No. 2, 848-856 (1980).

Infrared and Raman results for the β - and β' -gallate superconductive conductors, G. Burns, G. V. Chandrasekhar, F. H. Dacol, L. M. Foster (RES Yorktown Hts., NY), and H. R. Chandrasekhar (University of Missouri—Columbia), *Physical Review B* **22**, No. 2, 1073-1082 (1980).

Compound geometrical resonances in superconducting proximity-effect sandwiches, W. J. Gallagher (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 3, 1233-1236 (1980).

Magnetic properties of the 3d transition metals in the amorphous ternary alloys: $Gd_{0.2}(Fe_xCo_{1-x})_{0.8}$, $Gd_{0.2}(Co_xNi_{1-x})_{0.8}$, and $Gd_{0.2}(Fe_xNi_{1-x})_{0.8}$, R. C. Taylor and A. Gangulee (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 3, 1320-1326 (1980).

Site and nature of H bonding on Ti (0001), P. J. Feibelman (Sandia National Laboratories, Albuquerque, NM), D. R. Hamann (Bell Laboratories, Murray Hill, NJ), and F. J. Himpsel (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 4, 1734-1739 (1980).

Experimental bulk energy bands for diamond using $h\nu$ -dependent photoemission, F. J. Himpsel, J. F. van der Veen, and D. E. Eastman (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 4, 1967-1971 (1980).

Exchange and dipolar interactions in $PrVO_4:Gd$, F. Mehran, K. W. H. Stevens, T. S. Plaskett, and W. J. Fitzpatrick (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 5, 2206-2212 (1980).

Negative-temperature coefficients of electrical resistivity in amorphous La-based alloys, R. Mueller, K. Agyeman, and C. C. Tsuei (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 6, 2665-2669 (1980).

Experimental energy-band dispersions, critical points, and spin-orbit splittings for GaSb using angle-resolved photoemission, T.-C. Chiang and D. E. Eastman (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 6, 2940-2944 (1980).

g -value decomposition of magnetic susceptibility in tetrathiafulvalene- and hexamethylenetetrathiafulvalene-tetracyanoquinodimethane (TTF-TCNQ and HMTTF-TCNQ), Y. Tomkiewicz, A. R. Taranko (RES Yorktown Hts., NY), and J. B. Torrance (RES San Jose, CA), *Physical Review B* **22**, No. 6, 3113-3118 (1980).

Intensity of Raman scattering from molecules absorbed on a metallic grating, S. S. Jha, J. R. Kirtley, and J. C. Tsang (RES York-

town Hts., NY), *Physical Review B* **22**, No. 8, 3973-3982 (1980).

Experimental energy dispersions for valence and conduction bands of iridium, J. F. van der Veen, F. J. Himpsel, and D. E. Eastman (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 9, 4226-4233 (1980).

Renormalization-group calculation of first-order and second-order phase transitions in the Potts model, E. Pytte (RES Yorktown Hts., NY), *Physical Review B* **22**, No. 9, 4450-4461 (1980).

Observation of Crossover in the Dynamic Exponent z in Fe and Ni, L. Chow, C. Hohenemser (Clark University, Worcester, MA), and R. M. Suter (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 11, 908-911 (1980).

Phase-Slip and Localization Diffusion Lengths in Amorphous W-Re Alloys, P. Chaudhari, A. N. Broers, C. C. Chi, R. Laibowitz, E. Spiller, and J. Viggiano (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 11, 930-932 (1980).

Excitation Spectrum of the Toda Lattice: A Molecular-Dynamics Study, T. Schneider and E. Stoll (RES Zurich, Switzerland), *Physical Review Letters* **45**, No. 12, 997-1000 (1980).

Frequency-Dependent Optical Dephasing in the Stoichiometric Material EuP_5O_{14} , R. M. Shelby and R. M. MacFarlane (RES San Jose, CA), *Physical Review Letters* **45**, No. 13, 1098-1101 (1980).

Geometry-Dependent Si ($2p$) Surface Core-Level Excitations for Si(111) and Si(100) Surfaces, F. J. Himpsel, P. Heimann, T.-C. Chiang, and D. E. Eastman (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 13, 1112-1115 (1980).

Pressure Study of the Metal-Insulator Transition in TmSe, M. Ribault (Université Paris-Sud, Orsay, France), J. Flouquet, P. Haen, F. Lapierre, J. M. Mignot (Centre National de la Recherche Scientifique, Grenoble, France), and F. Holtzberg (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 15, 1295-1298 (1980).

Two-Band Superconductivity in Nb-Doped $SrTiO_3$, G. Binnig, A. Baratoff (RES Zurich, Switzerland), H. E. Hoenig (Universität Frankfurt, Federal Republic of Germany), and J. G. Bednorz (Eidgenössische Technische Hochschule, Zurich, Switzerland), *Physical Review Letters* **45**, No. 16, 1352-1355 (1980).

Soliton Features in Easy-Plane Ferromagnets?, J. M. Loveluck, T. Schneider, E. Stoll, and H. R. Jauslin (RES Zurich, Switzerland), *Physical Review Letters* **45**, No. 18, 1505-1508 (1980).

Surface-Enhanced Raman Scattering from Pyridine on Ag(111), P. N. Sanda, J. M. Warlaumont, J. E. Demuth, J. C. Tsang, K. Christmann, and J. A. Bradley (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 18, 1519-1523 (1980).

Phase-Slip Short Noise at the Two-Dimensional Superconducting Transition: Evidence for Vortices?, R. F. Voss, C. M. Knoedler, and P. M. Horn (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 18, 1523-1528 (1980).

Infinite Susceptibility Phase in Random Uniaxial Anisotropy Magnets, A. Aharony and E. Pytte (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 19, 1583-1586 (1980).

Pressure Dependence of Superconductivity in an Organic Superconductor bis-Tetramethyltetraselenafulvalene Hexafluorophosphate, R. L. Greene (RES San Jose, CA) and E. M. Engler (RES Yorktown Hts., NY), *Physical Review Letters* **45**, No. 19, 1587-1590 (1980).

Substitutional Defect Pairs in GaAs_{1-x}P_x, O. F. Sankey, H. P. Hjalmarson, J. D. Dow (University of Illinois, Urbana), D. J. Wolford (RES Yorktown Hts., NY), and B. G. Streetman (University of Illinois, Urbana), *Physical Review Letters* **45**, No. 20, 1656-1659 (1980).

On Laser Annealing and Lattice Melting, W. P. Dumke (RES Yorktown Hts., NY), *Physics Letters* **78A**, No. 5-6, 477-480 (1980).

New Weapons—Old Doctrines—Strategic Warfare in the 1980s, R. L. Garwin (RES Yorktown Hts., NY), *Proceedings of the American Philosophical Society* **124**, No. 4, 261-265 (1980).

Special Issue on Software Engineering, L. A. Belady (RES Yorktown Hts., NY), *Proceedings of the IEEE* **68**, No. 9, 1043-1044 (1980).

Software Engineering Education, H. D. Mills (FSD Bethesda, MD), *Proceedings of the IEEE* **68**, No. 9, 1158-1162 (1980).

Optical Fibers for Computer Systems, J. D. Crow and M. W. Sachs (RES Yorktown Hts., NY), *Proceedings of the IEEE* **68**, No. 10, 1275-1280 (1980).

R

Effect of Atmospheric Conditions on Remote Sensing of Vegetation Parameters, J. V. Dave (DPD Scientific Center, Palo Alto, CA), *Remote Sensing of Environment* **10**, No. 2, 87-99 (1980).

S

Bounds on the Scheduling of Typed Task Systems, J. M. Jaffe (RES Yorktown Hts., NY), *SIAM Journal on Computing* **9**, No. 3, 541-551 (1980).

The Extrapolation of First Order Methods for Parabolic Partial Differential Equations, II, A. R. Gourlay (IBM England, Winchester Scientific Center) and J. Ll. Morris (University of Waterloo, Ontario, Canada), *SIAM Journal on Numerical Analysis* **17**, No. 5, 641-655 (1980).

Surface Plasmon Model of Surface Enhanced Raman Scattering, J. R. Kirtley, S. S. Jha, and J. C. Tsang (RES Yorktown Hts., NY), *Solid State Communications* **35**, No. 7, 509-512 (1980).

Final-State Effects in the Excitation Spectra of Deep Impurities in Semiconductors, S. T. Pantelides (RES Yorktown Hts., NY) and H. G. Grimmeiss (Lund Institute of Technology, Sweden), *Solid State Communications* **35**, No. 9, 653-656 (1980).

Surface Plasmon Polariton Contributions to Stokes Emission from Molecular Monolayers on Periodic Ag Surfaces, J. C. Tsang, J. R. Kirtley, and T. N. Theis (RES Yorktown Hts., NY), *Solid State Communications* **35**, No. 9, 667-670 (1980).

Comment on the Low Temperature Specific Heat of Ferroelectrics, Antiferroelectrics, and Related Materials, G. Burns (RES Yorktown Hts., NY), *Solid State Communications* **35**, No. 11, 811-814 (1980).

Photoemission from Physisorbed CO on Clean and Xe-Covered Al(111), T.-C. Chiang, G. Kaindl, and D. E. Eastman (RES Yorktown Hts., NY), *Solid State Communications* **36**, No. 1, 25-28 (1980).

Quantum Well Model of Hydrogenated Amorphous Silicon, M. H. Brodsky (RES Yorktown Hts., NY), *Solid State Communications* **36**, No. 1, 55-59 (1980).

Angular Dependent Photon-Stimulated Desorption of Ions from a V₂O₅(010) Surface, J. F. van der Veen, F. J. Himpsel, D. E. Eastman, and P. Heimann (RES Yorktown Hts., NY), *Solid State Communications* **36**, No. 2, 99-104 (1980).

ac Conductivity of Semiconducting trans-Polyacetylene, P. M. Grant and M. Krounbi (RES San Jose, CA), *Solid State Communications* **36**, No. 4, 291-295 (1980).

Electronic Properties of InAs-GaSb Super Lattices, L. L. Chang and L. Esaki (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 70-89 (1980).

Techniques for Determining Threshold, A. B. Fowler and A. M. Hartstein (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 169-172 (1980).

Temperature Dependence of Scattering in the Inversion Layer, A. Hartstein, A. B. Fowler, and M. Albert (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 181-190 (1980).

Effect of Biaxial Stress on Si(100) Inversion Layers, F. F. Fang (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 416-426 (1980).

Plasmons in Inversion Layers, T. N. Theis (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 515-532 (1980).

Yamada Conference II on Electronic Properties of Two-Dimensional Systems (Third International Conference), F. Stern (RES Yorktown Hts., NY), *Surface Science* **98**, No. 1-3, 613-616 (1980).

T

Differential Scanning Calorimetry of Hydrogen Peroxide and Hydrogen Peroxide-Treated Lignocellulose. I. Ambient Pressure Conditions, T. Nguyen (ARCO Chemical Co., Glenolden, PA), E. Zavarin (University of California, Richmond), and E. M. Barrall (GPD San Jose, CA), *Thermochimica Acta* **41**, No. 1, 107-116 (1980).

Diffusion Processes in Thin Films, D. Gupta and P. S. Ho (RES Yorktown Hts., NY), *Thin Solid Films* **72**, No. 3, 399-418 (1980).

Resistivity and Oxidation of Tungsten Silicide Thin Films, R. J. Miller (GTD East Fishkill, NY), *Thin Solid Films* **72**, No. 3, 427-432 (1980).

Grain Boundary and Vacancy Diffusion Model for Electromigration-Induced Damage in Thin Film Conductors, J. R. Lloyd (GTD East Fishkill, NY) and S. Nakahara (Bell Laboratories, Murray Hill, NJ), *Thin Solid Films* **72**, No. 3, 451-456 (1980).

The Evaporation Capability of Various Glasses, W. Fedrowitz and W. A. Pliskin (GTD East Fishkill, NY), *Thin Solid Films* **72**, No. 3, 485-486 (1980).

U

Consumerism, A. Emerson (GBG/I San Jose, CA), *USA Today* **109**, No. 2424, 7 (1980).

W

Analysis of a Chance-Constrained Reservoir Control Model, M. Sniedovich (RES Yorktown Hts., NY), *Water Resources Research* **16**, No. 5, 849-853 (1980).

A Mixed Numerical Analytical Method for Ground Water Flow Simulation, D. Ramm and D. Chazan (IBM Israel, Haifa Scientific Center), *Water Resources Research* **16**, No. 5, 871-880 (1980).